

Claims

1. A method of setting up a call between first and second nodes of a communication system, said call extending across at least one circuit switched access network and a packet switched backbone network, the networks being interconnected by at least one Media Gateway, the method comprising:
 - 5 1) sending a call initiation message from the first node to the second node via a control node over a packet switched access network available to the first node; and
 - 2) at the control node, obtaining from a Home Subscriber Server the identity of a Media Gateway Control Function controlling that Media Gateway which will terminate the call within the circuit switched access network.
- 10 2. A method according to claim 1 and comprising:
 - 3) sending from the control node to the first node over the packet switched access network, a circuit switched access number associated with the identified Media Gateway Control Function;
 - 15 4) calling said access number from the first node, and as part of the call set-up procedure communicating the identity of the Media Gateway selected to terminate the call to the Media Gateway Control Function;
 - 20 5) terminating the circuit switched call at the selected Media Gateway; and
 - 6) sending an update message from the first node to the second node over the packet switched access network, the Media Gateway Control Function incorporating into the update message an IP address of said selected Media Gateway.
- 25 3. A method according to claim 2, wherein the protocol used to set-up the session is SIP and said control node is a Serving Call State Control Function node located within the IP Multimedia Subsystem.
- 30 4. A method according to claim 3, wherein said call initiation message is a SIP INVITE message.
5. A method according to claim 3 or 4, wherein said call initiation message is sent from the Serving Call State Control Function node to said second node via the Media

Gateway Control Function, following identification of the Media Gateway Control Function by the Serving Call State Control Function.

6. A method according to claim any one of claims 3 to 5, said step of signalling an access number to said first node comprising, following receipt of the call initiation message at the Media Gateway Control Function, sending from the Media Gateway Control Function to said first node, via the Serving Call State Control Function, a SIP message containing the access number.
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- 10 7. A method according to claim 6, said step of calling said access number from the first node being carried out automatically at the first node following receipt at that node of the SIP message.
- 15 8. A method according to claim 6 or 7, wherein said SIP message containing the access number is a SIP REFER message.
9. A method according to any one of claims 3 to 8, said update message being a SIP UPDATE message.
20 10. A method according to claim 2, wherein both the first and second nodes are attached to respective circuit switched and packet switched access networks, the method comprising carrying out steps 2) to 5) to establish a circuit switched call at the terminating side between the second node and a Media Gateway selected for that node, and carrying out step 6) to signal to the initiating side the IP address of that Media
25 Gateway.
11. A method according to any one of claims 1 to 9, wherein said second node has access to only a packet switched access network, and said Media Gateway exchanges packets directly with the second node.
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12. A method according to any one of the preceding claims, wherein one or both of the first and second nodes are user terminals.

13. A method according to any one of the preceding claims, wherein said step of identifying a Media Gateway Control Function at the control node comprises receiving from a Home Subscriber Server either the identity of the switch to which the first node is currently attached or the identity of the Media Gateway Control Function associated with that switch..
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14. A method according to claim 3, wherein the identity information is sent by the Home Subscriber Server automatically following SIP registration of the first node.
- 10 15. A method according to any one of the preceding claims, wherein the communications system is a cellular radio communications system.
- 15 16. A method according to claim 15, wherein the identity is received in response to a query sent to the Home Subscriber Server by the control node, the query being triggered by receipt of the call initiation message.
17. A method according to claim 16, wherein the Home Subscriber Server receives Mobile Switching Centre location data for subscribers from a Home Location Register.
- 20 18. A method according to any one of claims 15 or 17, wherein the setting up of the call to the Media Gateway is controlled by a Mobile Switching Centre, the Mobile Switching Centre sending an Initial Address Message to the Media Gateway Control Function and that message containing the identity of the selected Media Gateway.
- 25 19. A method of operating a Serving Call State Control Function of an IP Multimedia Subsystem, the method comprising:
receiving a SIP INVITE message from a client terminal over a packet switched access network, the INVITE being identified as requiring the setting up of a circuit switched call from the client terminal;
30 sending a query to a Home Subscriber Server in order to identify a Media Gateway Control Function which controls that Media Gateway which will be selected to terminate the circuit switched call; and

relaying a SIP message from the Media Gateway Control Function to the client terminal, the SIP message containing a number associated with the Media Gateway Control Function and to which the client terminal should call to set up the circuit switched call.

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20. A method of operating a Media Gateway Control Function arranged in use to control a Media Gateway which provides a user plane interface between a circuit switched network and a packet switched backbone network, the method comprising:

 receiving a SIP INVITE message from a client terminal via a Serving Call State
10 Control Function of an IP Multimedia Subsystem;

 in response to receipt of said message, selecting a call back telephone number from a pool of numbers allocated to the Media Gateway Control Function;

 sending the selected number to the client terminal in a SIP message; and

 answering a subsequent call from the client terminal to the selected number
15 including receiving the identity of the Media Gateway which will terminate the call as part of the call set-up procedure.